Introduction to Computer Science III

In this course, students will have the opportunity to explore the foundations of computer science while preparing for the AP Computer Science A exam. With no prerequisites required, students will gain a solid understanding of programming concepts, problem-solving skills, and computational thinking. Through hands-on exercises, projects, and timed practice exams, students will sharpen their coding abilities and exam-specific strategies. The course culminates with an exciting final project where students will create their own Pac-Man game, applying the concepts and skills learned throughout the course. By the end of this comprehensive program, students will be well-prepared for the AP Computer Science A exam and equipped to pursue further studies or careers in computer science-related fields.

<u>Weekly Agenda</u>

Week 1: Introduction to AP Computer Science
- Computer Science Overview
- Computer Science Fundamentals
- Print Statements

Week 2: Assigning Variables
- Types of Variables
- Basic Arithmetic
- Modifying Variables
- Basic Data Structures

Week 3: Boolean Expressions
- Boolean Logics
- If Statements

Week 4: Functions and Classes
- Initializing and Calling Functions
- Built-in Functions
- Class Inheritance

Week 5: Iterations
- For Loops
- While Loops

Week 6: Recursion I
- Advanced Data Structures
- Introduction to Recursion

Week 7: Recursion II

- Recursive Functions
- Basic Recursive Algorithms

Week 8: Game Development I
- Pac-Man Project

Week 9: Game Development II
- Finalizing Pac-Man Project

Week 10: Data Structures and Algorithms
- Introduction to Advanced Data Structures
- Introduction to Advanced Algorithms
- Comparing Python and Java